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ABSTRACT

In its treatment of the development of reading comprehension, the document considers the topics of general understanding, influence of vocabulary and word meaning, relationships to subject matter areas, and techniques for study and questioning. Unit one, entitled Analysis of Style, deals with grasping the main idea; directly stated facts and reading for details; making inferences; and steps in reading to follow directions. The teaching of vocabulary and a list outlining constructs are offered in unit two. Comprehension skills pertinent to content area with suggestions relating to mathematics and science are considered in unit three. Focusing on psychological set and teaching learning techniques, unit four briefly outlines the principles of the CLOZE procedure, SQ3R, and D-R-T-A methods. The final unit discusses questioning techniques, the taxonomy of questioning techniques, the kinds of classroom questions, and the taxonomy of reading comprehension. (MW)

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UNIT THREE

COMPREHENSION SKILLS

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INTRODUCTION

The following unit discusses the development of reading comprehension. Topics considered are general understanding, influence of vocabulary and word meaning, relationships to subject matter areas, and techniques for study and questioning. The trainer should be aware that comprehension is a general intellectual function, that the association with the reading task is only one of circumstance--the reading lesson is, therefore, only one of several situations in which comprehension may be developed. All other instances of language use are also appropriate for developing those skills of understanding known as comprehension.

Teacher training techniques are not suggested in the text. The best method of training teachers to develop comprehension skills is a simple two-step process. First, have the teachers complete exercises as if they were students. Then have the teachers construct exercises and practice teaching each other. Reading descriptions of teaching practices may serve as an introduction, but one must be cautioned that such readings are not adequate for developing pedagogical skill.

The Editors

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UNIT I

ANALYSIS OF STYLE

Finding and Understanding Main Ideas

The ability to find out the most important thing an author is trying to say--the central thought or main idea--is perhaps the most important of all specific comprehension skills. Without it, the reader gets lost in a mass of detail, inspecting trees but unable to see the forest. Selecting the main idea from the many other ideas, requires comparison, judgment, and discrimination. Because of this, getting the main idea is often easy for the bright but very difficult for those of limited mental ability, who are likely to be more successful with details.

Reading to extract the main idea is demanded in a wide variety of materials: stories, novels, most newspaper reports, magazine articles, and other informative writings. Much recreational reading falls into this class, but not all. This type of reading should be done at a relatively rapid rate though not inaccurately or superficially. Reading rapidly and accurately to apprehend the main idea is not an easy skill to acquire, partly because attitudes due to emphasis upon remembering details have tended to become habitual.

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Development of skill in apprehending the main idea can be cultivated by a variety of exercises. Attention may be directed to the role played by introductions and conclusions, topical sentences, headings and sub-headings and newspaper headlines. In discussing these roles, it is important that the pupil does not substitute the reading of conclusions, topical sentences, and so on, for reading the whole article. He should realize that they provide a pattern which is useful in directing his attention to the main idea developed in the entire text. Complete reading of the material is necessary for clarifying concepts and acquiring more complete understanding.

1. Topic sentences. Students can be asked to find one sentence in a paragraph that contains the central thought. In discussing the differences between a topic sentence and other sentences, paragraph structure is analyzed. Students learn to expect that usually the first or the last sentence states the main idea.

2. Introductory and concluding paragraphs. In well-written selections, there is often an introductory paragraph or section that sets the purpose or explains the scope of the selection, and a concluding paragraph or section that summarizes. Students can be trained to read introductions and conclusions carefully, looking for the main idea or ideas.

3. Titles and headings. An author usually tries to convey his main theme in the title he gives a selection, and in informational material the main idea of each section is suggested in the heading. Discussion of title and heading sometimes discloses disagreements about interpretation which can be settled by reading the selection to see what the title or heading really means. In more formal exercises, students can be given selections from which titles and headings have been removed. They can be asked to choose among several alternatives in multiple-choice questions, or to write their own headings or titles. News articles for which they are to write headlines are particularly good for this purpose.

4. One-sentence summaries. Asking students to state the gist of a passage or selection in one sentence is a challenging way to get them to try to distill the essential idea from the many details. If several summary sentences are proposed, they can be placed on the chalkboard and criteria for choosing the best summary can be developed in discussion. Questions can be worded in various ways. What is it all about? What is the main idea? What would be a good title? What question is the author answering? In interpreting narrative material, understanding of main ideas frequently can be tested by asking how a central character felt at a critical point.

5. Skimming for a general impression. A very useful procedure is learning to skim through an entire selection rapidly and superficially to get a total impression. This can be helpful in giving an idea of the scope of a chapter that is to be studied carefully; in getting an idea of a writer's main point without bothering about details; in sampling a book to see if it is likely to be interesting, or suitable in difficulty, or likely to contain the information needed. A specific purpose needs to be set, which can be satisfied by this kind of skimming.

Failure To Grasp Main Idea

Many students fail to grasp significant facts for several reasons. First of all, they are not taught to listen effectively to recognize central thought. Secondly, there is sometimes overemphasis on intensive study of details which are not always significant. Students are required to read every word as though each one were of equal value. They are not taught to grasp significant details that will enable them to gain a clear idea of what a paragraph is about and to discard all irrelevant details. They must be encouraged to let their eyes jump along the line to get meaning from whatever words and phrases their eyes meet, rather than to try to see every word and get every idea in each line.

The ability to read for main ideas is one that must be developed gradually. From the time a student begins to read, systematic

instruction should be provided both in listening and reading to gain general impressions. Exercises that develop skill in this important aspect of comprehension should be provided at each reading level.

In order for a student to improve his comprehension, he must be able to reorganize the thoughts and material which he has read, using his own words, and be able to discuss this material with others. If he is not able to put the material into his own words, then he is actually unable to comprehend the material and it is too difficult for him.

Directly Stated Facts

Introduction

This skill is often used when testing, not only in reading but in other areas as well. Too often questions require an answer which is simply a "directly stated fact" or a detail, and too often the "directly stated fact" is really unimportant. How can you tell which "facts" are important? Just how important are "directly stated facts"? How much emphasis should be placed on this skill? What are the better ways to ask questions calling for details? What are some materials that could be used for a student who is weak in "directly stated facts"?

Reading For Details

If nation-wide standardized tests are to be believed, our children have been taught to read for details better than any other reading skill. But is this good? Probably reading for details is the least important of all the skills as it is so seldom needed.

Reading for details means slow reading, thorough reading. It is the opposite of speed or rapid reading or skimming. By implication teachers have assumed that thorough reading, which must be slow in order to be thorough, is "good" reading. This text questions such philosophy.

Noting Details, A Function Of Content

Certainly there are some kinds of material that must be read more carefully than others--recipes, legal documents, directions for complicated toys or electrical appliances are but a few examples. But the slow-up of the eye span to read such cannot be proved, or at least has not been proved, to be a function of training. One reads slowly because of the nature of the situation or of the material. In brief, reading for details should be a function of content, not a function of training. If a reader does not recognize that the material to be read calls for thoroughness, he is not reading for meaning. If reading has a purpose that is accepted by the reader, there is no training necessary to make the reading careful.

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Noting Details In Excess Causes Disability

More seriously, reading for detail has too often come to be a punitive matter. In public schools teachers often punish children for reading rapidly, and require them to read and reread to get some minor point. Regressive eye movements are a reading disability. The rare times that such details are needed should not be a result of such poor teaching as to produce a disability. Yet this can happen.

Questioning For Details

When does a teacher probe to assess the students' ability to read for details? First the type of material will dictate whether or not such an activity is necessary.

Three NYC students had found a set of directions to make an electromagnet. During the individual conference with the teacher, one of them brought this to light. The teacher called them all together for a session as follows:

TEACHER:	You all want to make an electromagnet?
ALL:	Yes
TEACHER:	What is the first thing that you do?
BOY NO. 1:	We need to get one or two dry cells, and some wire.
TEACHER:	How much wire? What kind?
BOY NO. 2:	Two or three feet of insulated wire.
TEACHER:	Yes. Are the cells and the wire all you need?
BOY NO. 3:	Oh no! We need some thumbtacks and a large nail.
TEACHER:	O.K. What then, is the first thing to do?
BOY NO. 1:	Put it all together, and make it work.

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TEACHER: How do you know when it is working?
BOY NO. 2: When the nail becomes a magnet.
TEACHER: I would like you to experiment with these materials first to see if you can work it out without directions. That is the most scientific way to do it. You will be better scientists in the long run if you depend on your hunches than if you depend upon written directions. But, nevertheless, there is a place for printed or written directions. Can you figure out what that place might be?
BOY NO. 2: Sure--to see how our own experiment is like the directions.
BOY NO. 3: We may find a short cut to making the electromagnet that we hadn't thought of.

This interchange during a regularly organized group conference shows how a teacher can help students to see that details are important under certain conditions.

On a magnetic note, some questions might be cited that are a waste of time, as they stem from a teacher's suspicion and mistaken notion that pupils do not read well unless they read "thoroughly."

Recognizing pertinent details means exactly that. There must be a real purpose for the question other than testing the pupil to "make sure he has read what he was supposed to." To trip up a person, to make him guess the one right answer the teacher might have in mind, is not good teaching. When the questions lead to more and more discussion, to deeper examination of the topic involved, to the extending of "living area" beyond the limits of the story--then the teacher is truly an educator.

Reading to Note Relevant Details

When the student has had considerable experience in finding main ideas, details are needed for a complete understanding of that idea. Reading for relevant details is demanded in certain content areas: science, geography, arithmetic, home economics, and history. It is much slower reading than the reading for general impressions or main ideas, directly related to the reader's purpose. If he is seeking dates or pertinent data for an experiment or construction activity, he must read carefully and relate the details to each other and the main idea. It is possible that much of our classroom testing encourages pupils to read for details, which are often really unimportant. This is not intended to discount the necessity of reading for details, but many details are useless to a person unless he sees them in relation to main ideas. The teacher may find these activities helpful in teaching students to read for relevant details.

1. Select a paragraph which contains a clearly stated main idea and several supporting details. Read the main idea and identify it as such for the students. Now ask them to write down the details which they hear as you read the remainder of the paragraph. Allow the students to compare the details which they have selected.

2. State a main idea and encourage the pupils to read a selection for details which will explain or support that idea.

3. At upper-grade levels, have the students list all of the details which have been given in a particular paragraph or selection. Then classify the

details, as to their contribution to the main idea, as important, as merely informative, or as actually unnecessary. This may aid the student in seeing that he must be prepared at all times to "to let words go" when they are not essential to his purpose for reading the selection.

4. Select a problem for discussion, perhaps from social studies. Discuss the problem carefully and list the information which the students know about the problem from their previous experiences. Through discussion, decide what information is needed to solve the problem and elicit opinions as to where the information might be found. After the students have gathered the information, discuss the relevancy of each person's contributions. Now it is time to organize the details which have been gathered, and this may be done by listing all of the relevant details on the blackboard and then numbering them in order in which they should appear for giving the best solution to the problem. Although this would appear to be a technique which one might use with upper-grade instruction, it is nicely adaptable to middle level, if care is taken to limit the problem.

Inferences

Understanding ideas which an author states outright is essential to reading. However, the good reader does more. He is sensitive to ideas which the author merely suggests or implies. When a reader draws conclusions of his own from hints or facts given by the author, he is making inferences. Then, when an author writes, "Mrs. Bronson smiled," the reader infers that Mrs. Bronson was probably pleased. When a sentence says, "The ranger dug spurs till flecks of blood spotted the flanks of his horse," the reader infers that (1) the ranger was seated on a horse, and (2) the ranger was urging his mount forward.

Making inferences is a normal, essential part of everyday living. Everyone is continually drawing conclusions from things they see, hear, smell, feel, or taste. For example, one can infer quite a bit about people from their belongings or their surroundings. A stack of progressive jazz records suggests an interest in a certain kind of music; a bedroom floor littered with dirty clothes, shoes, candy bar wrappings, and empty coke bottles hints at a careless occupant.

If you want to be sure that your conclusions about a person are correct, you must observe what he <u>does</u> in the story as well as what he <u>says</u>. For example, if someone at dinner exclaimed over the "delicious creamed spinach," but left his portion uneaten, you would probably feel that what he did was truer expression of his feelings than his flattering remarks. You would infer from his actions that he doesn't like creamed spinach. It is also very important to pay close attention to the opening sentences in anything you read, for here the author often provides clues from which you can infer what kind of piece you are reading and what it will be about.

Nothing is more fundamental to clear and logical thought than the ability to distinguish between an observation and an inference that is made about an observation. Many pitfalls in logical thinking can be avoided if this distinction is continually made and used.

An observation is a personal experience that is obtained through one of the senses. An inference is an explanation of an observation and results from thinking about the observation. The thought process is frequently strongly conditioned by past experiences, and may take place in a fraction of a second. For example, you may be in your living room and see a bright flash outside the window. Almost immediately after the flash you hear a loud crashing noise. In less than a second you may begin to state your inference, "lightning struck something not very far away." This inference is the result of two observations--light and sound. It is based on past experience with lightning and thunder including the knowledge that the time interval between the flash and the sound is a measure of how far away the lightning struck. Do you suppose that your immediate reaction might have been to make a different inference about the flash of light and the loud noise if you had been a marine just returned home from Vietnam?

There is much disagreement among the reading experts about the starting place for critical reading which is the main heading that inferences fall under. Some say start at the first grade reading level and others say wait until the student reaches the third or fourth grade reading level. The good rule of thumb to remember is this: The WHY questions and other inferential questions should occur only when pupils have acquired sufficient

control of the language and understanding of the cultural moves involved.

Use the following guide as to the types of inferences and each level:

BEGINNING READING:

(1) Very general inferences and drawing conclusions.

INTERMEDIATE READING:

(1) Inferring the meaning of a single proverb or maxim and relating it to his own activities.

(2) Seeing how to apply proverbs and maxims learned in the classroom to outside situations.

(3) Inferring general implications from fables and legends.

(4) Inferring relationships not stated.

(5) Noting cause and effect relationships.

(6) Drawing conclusions.

The teacher should work to discover if the student has not only gained the central thought or main idea, but is aware of the "between the lines" meaning of the selection. The point of his personal approval or disapproval is not germane here. Does he see, does he realize what is being implied if not actually said? Does he catch subtitles? Has he been fooled in some ways? Here are some questions.

(1) Do you think the story is really about_____?

(2) Is there something here that isn't actually said?

(3) Is there anything in the story that was not the same as you've heard somewhere else?

(4) Do you think you can believe what it says? Why? Why not?

(5) What is problem of_____(a character in the story)?

(6) Is there a lesson to be learned ? What?

The student needs to discover the many thoughts the writer did not put into his writing directly. Sometimes the difference between what is meant and what is said is slight. Sometimes it means exactly opposite of what is said. Sometimes a thought was left out altogether, and the reader supplies it through his own thinking, in order to understand what the writer meant. When the student reads between the lines to find out what the writer really means, he is making inferences, and getting more meaning from the words.

There are several different kinds of inferences:

(1) Inferences based upon observation of qualities or properties.
(2) Inferences based upon definitions.
(3) Inferences based upon condition and outcome.
(4) Inferences based upon purpose or goal.
(5) Inferences based upon rules.

The skill of inference is necessary to the student as he pursues all of his studies. It also prepares him for examining the sources and criteria for knowledge.

In teaching the student to use details to arrive at inferred meaning, it is often possible that the student be misled to infer too much. An inference is a truth drawn from another truth or sometimes called a conclusion. Each person should be taught to ask himself of each inference: "Does this inference make sense?"

Workbook materials are very good aids in developing all skills. Almost all workbooks contain exercises on making inferences on all

levels. Teacher-made materials can also be used, but are time consuming for the teacher and can sometimes run into great expense. However, they can be used to great advantages to provide for individual needs within the class. The teacher should keep in mind that exercises such as these are intended only for practice, and should be used as such. The practice is only a means to the end. The end should be the ability of the student to use each skill in a functional situation. With this fact in mind, the teacher should use the understanding the students have gained through these exercises at each possible opportunity. He should teach the students to transfer the learning from one situation to another, and the student can only do this through his teacher's help. In preparing these practice exercises, the teacher should keep in mind that they will be effective only if he uses situations meaningful to his students.

Some examples of the ways in which beginning readers may practice the ability to infer are:

(1) Inferring from the picture accompanying the story the action that is to be expected.

(2) After a story is read, discussing with the students questions like the following: What kind of person do you think Jim was? What made you believe he was brave?

(3) Have students infer from pictures of certain stereotypes, who they are and what their job is.

Some examples of the ways in which practice may be gained in making inferences in the upper reading levels are:

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1. After a selection has been read the teacher could ask thought provoking questions that could not be answered through factual information alone.

2. Provide practice in making inferences through observation. A good way to accomplish this is through scientific observation. For example:
   A. You place a lighted candle directly behind a soda bottle. You send your breath directly to the front of the bottle, and the candle goes out.
      1. What happened?
      2. How do you know what happened?

3. Have the students make inferences, and then have them consider the validity of their inferences through an examination of the evidence.

4. Have the students make if-then inferences. Example:
   A. If the Diamond Football Team is behind by a score of 14 to 12 and the other team has the ball, what can happen to change the score in the one minute that remains in the game?

5. Have the students make inferences according to a rule. Example:
   A. Explain the error in the following sentence.
      1. John's friend and his dog is there.
   B. Explain why you do the following.
      1. Wash your hands before you eat.

6. Have the students make inferences through definitions. In order to do this, have the students read a passage, and then take words from that passage and have the students define them according to the way they are used in the story.

7. It is possible to use pictures at these levels and have the students make inferences from what they see in the picture.

8. Other ways to give the student practice in making inferences is to provide exercises such as the following:
   1. Standing behind the curtain, she could smell the make-up and feel the hot lights.
   Where is she?
   ____ a. at a beauty shop
   ____ b. in a theater
   ____ c. at a dance
   2. Fred has a good imagination and likes to draw.
   Fred is probably an_____.

3. January, the first month, is named after Janus, a Roman god of doors and gates. Janus has two faces--one that opens in; and one that opens out.

___ 1. February comes after January.
___ 2. The Romans honored doors and gates.
___ 3. All months are named after Roman gods.
___ 4. The Romans had more than one god.
___ 5. The Romans didn't know how to make gates.

After reading the paragraph carefully, choose the statements that would make good inferences.

5. Use poetry since these are classic examples of inferential reading.

Students reading on junior or senior high level may get practice in making inferences in the following ways:

1. Author's slant and bias of a reading selection.
2. Being able to interpret symbolic language in a selection.
3. Being able to determine the theme of a story.
4. These students can also get practice in making inferences in the same ways that students reading on the upper elementary level use; however, the material used should be on a more difficult level.

There are many materials on the market today and almost all of them can be used to develop the inference skills whether it is listed as part of its function or not. Just a few are listed below to give some idea:

(1) Controlled Reader
(2) E.D.L. Study Skills
(3) Building Reading Skills
(4) Reading Skilltexts
(5) Newspapers
(6) S.R.A. Materials
(7) Tactics I, II, III
(8) R.F.U. Materials
(9) Webster Classroom Clinic
(10) The science program--process approach

Following Directions

One of the most important uses for reading in everyday life is to find out how to do things. Think of the innumerable occasions every day which demand skill in reading directions. More and more people depend on printed directions and manuals of procedure. A housewife, a mechanic, a student all need to know how to read carefully and accurately and to follow a series of directions precisely and in correct order.

The ability to read directions requires a synthesis of many basic skills and techniques. It also requires a slower, more deliberate type of reading than is necessary for other situations.

Because there is a definite order in the presentation of material and because the relationship between the various steps must constantly be kept in mind and understood as you read, this type of reading may require a slower and more conservative pace. You may also have to re-read more than usual. Do not be unduly concerned, therefore, if your rate declines somewhat and you note yourself making more regressions than normal for this exacting type of material, especially in the early stages of learning to read to follow directions. Try, however, to increase your rate and to decrease regressive tendencies as you improve your skill in reading to follow directions.

Steps in Reading To Follow Directions

1. Look for the Directions. This is the first step in following directions, namely, to find them. It is amazing how many persons never see the directions that the author places before their eyes. Students fail to see the directions on tests. Adults buy items and then rush into using them without so much as looking for the directions that they know are close by.

2. Put Your Preconceived Notions Away. This is a corollary to the preceding point. Many people read directions with their minds already made up before they begin to read. They know how it should be done, but they'll look at the directions anyway. Then they go ahead and do it how they were going to do it before.

3. Read through the Directions Rapidly at First. Directions should be read the first time carefully and completely, but also rapidly. Look for the final goal toward which the whole set of directions is tending. To get the over-all view is very important. Skim first: orient yourself to whole situations. Of course, you will want to read again, more carefully, the steplike progression of points that lead to the final goal in mind. See that goal, therefore, early in the process with unmistakable clarity.

4. Try to Understand the Logic of Each Step. A characteristic of directions is that each step follows every other in logical sequence. First, this; then, that; and after that, a third thing: That is the formula. Try to see how each operation hinges on the one before it and how that, in turn, serves as a preparation for what is to follow.

5. Visualize the Critical Points. See the steps as you read them. Try to see yourself doing exactly what the words are telling you to do. Note especially the critical points. If the directions tell you to turn left two blocks and then right, there are three critical points where you might err: You must be sure the first turn is to the left, then after proceeding two blocks you turn to the right.

6. Note Especially the Key Words. Scale down the wordage and keep a sharp eye open for the key words.

7. Review the Steps in a Final Summing Up. Finally, read the directions again, rapidly, noting in a kind of last-look technique every turn of the thought, every change in direction at a critical point. Note the key words and essential data. Keep an eye always open for the directional words that are always signposts: now, then, after that, lastly. Visualize the whole process again as you go over it. Try to wrap up the package in your own thinking as a complete and compact whole, a power-packed bundle of directions. Know precisely what is to be done, how, when, and under what conditions. A final review will help to fix all this in your mind.

Practice in reading and following directions is best provided in relation to activities which adults wish to carry out or skills which they want to learn. In many subjects, textbooks contain directions which can be used for reading practice. This is particularly true in arithmetic and science. Direction for handwork activities can also be used to good effect. If the task is one easily corrected or repeated, the student can attempt to carry it out without preliminary discussion and the teacher can judge by the results whether the directions were properly read. If the task is a long one or involves expensive materials, it is desirable first to discuss the directions and clarify any misconceptions through rereading and further discussion.

Many different sources of material can be used. Men like to work on directions from magazines like Popular Mechanics, directions for performing scientific experiments, and so on. Women can be interested in cooking recipes, directions for sewing, knitting, making household articles, and the like. When additional

practice in following directions seems to be needed, workbook exercises can be employed.

UNIT II

VOCABULARY

Situational ethics or morals have a counterpart in teaching the comprehension skills. If in doubt as to what to teach, this author's response would be, "Teach vocabulary!" The situation is always right. Consider these reasons:

1. Most psychologists consider vocabulary the most reliable measure of intelligence.

2. Words are the tools of thought. Without the precise word, a person can only express emotion, not coherent thoughts.

3. Most research shows a high correlation between vocabulary and comprehension. Which one controls or advances the other is as incalculable as which comes first, the chicken or the egg.

4. Vineyard and Massey found that even when intelligence is held constant there still is a sufficiently high relationship between comprehension and vocabulary proficiency to attempt to improve comprehension through vocabulary training.[1]

Studies tend to indicate that vocabulary study is beneficial, but that pupils with average or above average ability profit more than those of below average ability. Pupils tend to learn words better if they have an immediate need to use them. Finally, a combination of teaching methods seems to be better than the use of any one alone.

Avenues for teaching vocabulary are constructed by the very nature of English vocabulary. The following list outlines these constructs which may serve as teaching guides in the development of word meanings:

I. Contextual setting. The specific meaning elicited by a word is the function of the context in which the word occurs. This is not only the verbal context but also the cultural and structural context.

1. Antonym clue -- (Ed was talkative while Bill remained taciturn.) The sentence structure provides the parallelism and the contrast necessary for understanding the word taciturn.

2. Synonym clue -- (Her friendliness to strangers was a sore point with him. However, her amicable ways did advance his own social position.) Although the phrase "friendliness to strangers" is not in the same sentence, it is obviously synonymous with "amicable ways."

3. Definition clue -- (Some industries hire apprentices who learn as they work.)

4. Experience clue -- (The teacher was mortified! How could she have forgotten to change shoes. Bedroom slippers in the classroom!) The reader is able to decide on what is meant by "mortified" by relating the teacher's reaction to his own experience or knowledge of human behavior.

II. Multiple meanings. Most words have more than one meaning. Generally, the more frequently a word is used, the more meanings it tends to have. For example:

1. May I have a match, please?
2. Can you match the color of this material?
3. I would match our school team against all comers.
4. Her mother spent five years searching for what she considered a suitable match for her daughter.
5. The draftsman computed the angle very carefully on the blueprint.
6. Huckleberry Finn used to love to angle along the muddy banks of the Mississippi.

7. To avoid discovery, the puppy hid the bone behind the angle of the kitchen door.
8. We must get together and decide upon a different angle of attack on this problem.

III. Background experience. The number of meanings actually elicited by a word depends on the number and quality of experiences that the reader has associated with the word.

IV. Word relationships are paths to meaning. The pupil has numerous means at his disposal for developing word meaning. The word may be explained to him by giving a synonym or antonym, by classifying the word, and by pointing out differences and similarities. Or the meaning may be illustrated through activities, picture clues, structural analysis, and the dictionary.

V. The past illumines the present. Etymologies or word histories provide invaluable information for the development of meaning. Studies have shown that a few Greek and Latin prefixes are very helpful in deciphering the meanings of thousands of words. For example:

AMBITION

A Going About for Votes

Even in ancient Rome candidates for public office went about soliciting votes. This activity was denoted by the word ambitio, "a going about, around." Ambitio was derived from ambire, "to go about," which in turn was formed from amb-, "about" and ire, "to go." Since this activity indicated a desire for honor or power, the word ambitio came to mean the desire for official honors. This word was borrowed in French and English as ambition, and its meaning broadened to denote the earnest desire for preferment or achievement.

NEIGHBOR

Nearby Farmer

In Anglo-Saxon, neah meant "nigh," "near," and gebur meant "dweller," "farmer." These two words were combined into neahgebur, meaning, literally, "a nearby farmer." The word appears in Medieval English as neighebour and in Modern English as neighbor. Its meaning, changing with the evolution of civilization, no longer applies particularly to neighboring farmers but refers to all persons living near each other. Even nations in the modern world are called "neighbors"--an interesting development of a word that means, literally, "nearby farmers."

VI. Understanding the frameword helps. Recognition of the structure of the word in terms of roots, prefixes, and suffixes will provide a structure or foundation for the development of meaning.

The study of roots is too complex for reading as here defined. The Greek roots like chrono, thermo, micro, meter, tele, demo, graph, etc., are easy to recognize and their spellings in English do not vary much. Words of formidable appearance, like chronometer, thermometer, microscope, democracy, telephone, telegraph, etc., can be made more meaningful when the pupil sees the root meanings, but the occurrence of words of this kind is not high in common reading material. The Latin roots are hard to identify in many English words and have many spelling variations (fac, fec, fic, fect, in factory, confection, etc.).

Examples of roots, prefixes, and suffixes follow:

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NEGATIVE PREFIXES

Prefix	Meaning	Prefixed Word	Word Meaning
un-	not	unaware	(not aware)
in-	not	inactive	(not active)
im-	not	impossible	(not possible)
ir-	not	irregular	(not regular)
il-	not	illegal	(not legal)
non-	not	nonresident	(not a resident)
	without	nonprofit	(without profit)
dis-	not	disobey	(not obey)
	wrong	dissatisfy	(not satisfied)
mis-	wrong	misspell	(spell wrongly)
	wrongly	misinform	
anti-	against	antiunion	(against unions)
		antisocial	(not social)

PREFIXES OF NUMBER

uni-one: unicycle (a vehicle having only one wheel)
mono-one: monologue (talk by one person)
bi-two: bicycle (a vehicle having two wheels)
tri-three: triplicate (in three copies)
quad-four: quadrangle (a figure having four angles)
cent-hundred: century (hundred years)
hemi-half: hemisphere (half a sphere)
demi-half: demitasse (a cup half the ordinary cup)
semi-half: semicircle (a half-circle)

OTHER IMPORTANT PREFIXES

ab, a	away from, from	ad,a,ap,at	to, toward
be	by	com,co,cor	with, together
de	from	con, col	
epi	upon	dis, di	apart
in,in,im,em	in, into	ex,e	out of
inter	between	in, ir, il	not
non	not	mis	wrong
pre	before	ob,op,of	against
re	back,again	pro	in front of
trans	under	un	not

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Of less importance are:

ante	before	circum	around
contra	against	intra, intre	inside, within
per	through	post	after
amphi(ambi)	around, on both sides	super	above
dia	through	peri	around
syn	together		

IMPORTANT SUFFIXES

able, ible	capable of, worthy	durable, credible
age	act or state of	bondage, dotage
acy	quality of	lunacy, piracy
al,eal,ial	on account of, related to	judicial, terminal
ance, ence	quality, state of	violence, temperance
ant	quality of one who	reliant, truant
ar,er,or	agent	scholar, author
dom	state, condition, fact of being	wisdom, kingdom
en	made of, to make	woolen, strengthen
eur	one who	amateur
ful	full of	graceful, blissful
fy	to make	falsify
ible,ile	capable of being	legible, docile
ier	one who	carrier
ic,ac	like, made of	maniac, metallic
ism	fact of being	barbarism

VII. <u>The total is not always equal to the sum of the parts</u>. Figurative language differs from the literal or standard construction. Idiomatic usage must be taught in phrases. Unfortunately, most inexperienced readers tend to interpret expressions literally. At no other juncture is the lack of educational background so noticeable. The understanding of figures of speech is vital even to comprehending level reading material. By studying euphemistic style, the adult can often add a more genteel note to his own speech. The following

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examples may be helpful.

An amusing game with words was introduced over the radio several years ago by Bertrand Russell, a famous British philosopher and mathematician. The game consisted of making up sentences in which the same situation, person, or thing is described in three different ways. The statements vary according to the way the speaker feels. For example:

1. He is firm.
2. He is obstinate.
3. He is a pig-headed fool.

Your attitude toward a person determines whether you call him "firm," "obstinate," or "pig-headed." If you admire the person, he is "firm." If you disapprove of him, he is "obstinate." If he annoys or disgusts you, he is "pig-headed." The language you use depends on your feelings and reveals your attitude.

EUPHEMISTIC STYLE

The word euphemism comes from the Greek words for "well" and "speak." A euphemism is a manner of speaking in which a pleasant or inoffensive word or expression is substituted for a stronger form. The dictionary describes it as the use of a mild or vague expression as a substitute for blunt precision or disagreeable truth. Here are some euphemisms with the term for which they are substituted.

EUPHEMISM	MEANING
blessed event	birth
meeting one's Maker	dying

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gathered to one's reward	dead
touched in the head	insane
mental reservation	lie
under the weather	ill or drunk
financially embarassed	without money
strategic withdrawal	retreat
senior citizens	old people
culturally disadvantaged people	poor people

You will notice that each euphemism is a polite, restrained way of expressing what may not be said bluntly in certain places at certain times or in certain company. Make a list of euphemisms you have observed among your friends or read in books, newspapers, advertisements, and magazine articles.

UNIT III

COMPREHENSION SKILLS PERTINENT TO THE SUBJECT MATTER AREAS

Most material related to any subject matter field is written by an expert in that field. When a specialist in an academic field uses what he considers to be a limited vocabulary and simple concepts to write material for adult basic education, this limited level often turns out to be the frustration level for the inexperienced reader. The abundance of reading materials with inaccurate reading grade placement has already been discussed. However, a few further cautions will be made at this point:

1. With the exception of math, the greatest discrepancies between reading levels as advertised by publishers and reading levels as tested by readability formulas exist at the third and fourth grade levels in books written for specific subject matter areas.

2. Faison did an extensive study of the readability of texts used in fifth through eighth grades. The five subjects involved in this study were mathematics, history, science, English, and literature. The most difficult was found to be mathematics, with the others following in the order in which they were listed.[1] It is probably true that this same type of pattern exists in materials published particularly with the ABE student in mind.

3. Since math is a particular trouble spot, let's look at it in terms of two other studies. Heddens applied readability formulas to commercial elementary mathematics materials and to experimental elementary mathematics materials. The two studies indicated that the newer mathematics texts for a given grade level are harder to read than

older ones were.[2,3] Further confirmation of this is made by Covington. He used the CLOZE procedure and found that the third and fourth grade Greater Cleveland Mathematics Program textbooks were not readable for the third and fourth grade pupils used in his study, except for sections of word problems.[4]

4. Jacobson found that giving reading instruction in the field in which it is to be used is much more fruitful than giving it in another subject field and expecting the abilities to transfer to the content field. This seems to indicate that we need to teach the reading skills applicable to that content area while we are teaching the content.

5. Phipps attempted to improve the reading of history material in sixth grade by developing facility in the language of history. Among his several conclusions, he stated "The ability to read history can be improved by giving attention to the development of history vocabulary."

The ABE teacher needs to be aware of the reading problems his students will encounter in each content area that are peculiar to that academic field. The preceding serves to highlight the nature of these problems. Emphasize these points with the teachers you train. Just a sensitivity or realization that the problem exists may prove to be at least half of a solution.

Regardless of the content area, the teacher must help the student with the technical vocabulary. A text with a glossary provides a distinct advantage in identifying these important terms. Social studies and science books usually have acceptable glossaries. Math texts with adequate glossaries are not as plentiful. Technical vocabulary is often identified within the context by the use of italics. Words that are printed in italics deserve special attention from both teacher and student. The teacher must build the concepts necessary for student

understanding of each technical word. Translation, as delineated by Bloom, is a very necessary thought process for every ABE student to undertake with each new word he is attempting to master. Luella Cole, the author of Handbook of Technical Vocabulary, has made in this book a careful analysis of specialized words used in the different subject fields at different grade levels. The number and type of technical words listed are impressive. Even more words could be added to this list in order to update it. Her book provides an excellent perspective of the ABE teacher's job in teaching specialized vocabulary.

Aside from the technical vocabulary, the multiple meaning words will give the ABE student a great deal of difficulty in the content area. This is the factor that makes English so difficult for the foreign student. The same is true of the ABE student. Just when he feels that he has the meaning pigeonholed, it turns up in a completely different context. For sake of discussion, let's label a few of the types:

1. Overlap words - These are the words that may be claimed by two subject fields, e.g. Group - what does it mean in social studies? How does the meaning change when the term is used in math?

2. Tangent words - These are the words whose meanings range from something very concrete to something abstract.

3. Basic Sight Words - These are the little words that have no specialized meaning, but take on a specialized meaning in the writings of a certain discipline.

Mathematics

The following suggestions are designed to compensate somewhat

for the difficulty of a mathematics text.

1. Help students to become familiar with mathematical concepts by having them read comparable lessons in an easier text first and by using the approaches of an easier text in preparatory lessons. Better students may write a verbal problem in their own words, using shorter sentences instead of one long, involved sentence. Ditto these simplified versions for all students to read.

2. Help students understand the nature of a problem by having individuals invent verbal problems that reflect common life financial problems. Nonessential facts may be inserted in problems of a known type to give the group practice in finding the essentials for solution. A comparison of similar problems differently worded will show that different words may have the same meaning.

3. Have the students preread the lessons before attempting computation. Each time a student has a question at some point of difficulty, explain it just to him. If another student has the same problem, let the student to whom you have explained the problem become the expert and help anyone else that has that type of difficulty.

4. Give effective instruction by having better students tell how they have unraveled a puzzling problem and illustrate their successful methods.

5. Spend part of the instructional time in vocabulary development and review. Help students build a mathematical vocabulary by having them write in their notebooks a list of new words and words that have caused difficulty, giving examples of the processes these words represent, and using them in phrases or sentences.

The acid test of how well a student can follow directions comes when he reads a mathematical problem, because how he performs the act of solving the problem reveals how well he followed the directions. Concentrating on the significance of a question at the end of a problem paragraph is a distinctive skill needed in solving arithmetic problems. Seldom does a student encounter a question in the text while reading narrative material; if he does, the question has probably been asked for rhetorical effect, and it doesn't matter much whether he answers it

or not. In problem solving everything depends upon the question. ABE students need considerable experience in reading problems just for the purpose of finding out "what the question asks you?" and telling in their own words what the question directs them to do. Teaming the students in groups of two is an effective technique for this purpose.

Other distinct and more complex skills are involved in rereading the problem to analyze it into elements necessary for solution. This process involves selection and evaluation in picking out facts and relationships pertinent to a "frame of reference" which in this case is the question.

Finally, the arithmetical process must be selected, again in terms of "what does the question ask you to do" and of the various other considerations which were "weighed in the balance" during the rereading of the problem. Then, the student is ready to write the numbers on paper and do the computation.

The teacher needs to analyze how well the student can carry out the arithmetical processes. If his computation is adequate or above average, have him spend most of his time on building concepts and reading problems. If the student cannot compute, he will never get a right answer no matter how well he can read. Put the instructional emphasis where it belongs.

Science

An excellent selection on "Skills in Reading Science Material" is presented by Strang, McCullough, and Traxler. Please refer to this selection: 4th Ed., The Improvement of Reading, pp. 323-336.

UNIT IV

OUT OF THE MAZE

Psychological Set

Psychological set may be defined as readiness to learn or a state of mind conducive to learning. Psychological set is a very integral part of comprehension. Each individual varies from time to time in his ability to assimilate new ideas. This variation we often attribute to "the mood of the moment" or intrinsic or extrinsic motivation. The construction a person puts on the words of another is often determined by his present mental set, desire, interest, bias, or mood. Despite the possible negative influence on reading comprehension the interplay of these factors may produce, the area of individual psychological set is not as uncontrollable as one might conclude. Control comes from accenting the positive--the positive being what we know about how people learn and remember.

Harris has incorporated these laws of learning into a simplified list relevant to reading comprehension.

Rules for remembering:[1]

1. Material is easy to remember in proportion as it is meaningful.

2. Material is easier to remember if it is well organized in the individual's mind.

3. Outlining, summarizing, or taking good notes are aids to remembering.

4. An active intention to recall is an aid in trying to remember.

5. Recall must be selective. One must sift out the main points.

6. A single reading is rarely enough. Reviewing and rereading are necessary for remembering.

7. Immediately after reading one should reflect on what is read and recite important points to oneself.

8. What is learned and never reviewed is gradually forgotten. What is to be remembered must be refreshed from time to time by review.

Study Skills

The CLOZE procedure, SQ3R, and D-R-T-A are teaching-learning techniques which in their execution involve some combination of the above principles, and if utilized effectively will exert a positive influence over psychological set and thus increase a student's ability to comprehend.

CLOZE

CLOZE is an automatic word deletion process whereby words are removed from a printed passage. You do not remove words from the first or last sentence, but begin your word count with the first word of the second sentence. Standard procedure would be to delete every fifth word for narrative material and to increase the span between deletions

as the material becomes more fact laden. Often textbook material is deleted as seldom as every tenth word. In the written context a fill-in blank is left for each deleted word. When the student receives the prepared copy, he fills in the word he feels is most suitable. He has no word list as a referent, but supplies the word from his own conjecture. Succinctly stated, the advantages of utilizing the CLOZE Procedure as a technique for improving reading comprehension are:

1. This technique utilizes principles 1, 4, and 5, as delineated by Harris.

2. Research has shown that the CLOZE method is a valid technique for teaching and testing comprehension.

3. The ease of constructing a CLOZE exercise or test cannot be paralleled by any other type of teacher-made exercise.

4. The nature of the task demands that a student become involved and maintain a high level of attention.

5. In order to successfully replace the deleted words, the student must utilize those factors which build successful comprehension in any reading situation. These factors are:
   (a) Use of background knowledge
   (b) Use of context clues
   (c) Use of word usage or semantics
   (d) Use of syntax
   (e) Use of general understanding of the material
   (f) Maintenance of a questioning attitude

SQ3R

The SQ3R reading technique relates to all eight of the rules for remembering that Harris outlined. In addition, this formula for reading integrates these rules for learning with the reading act and the appropriate study skills in such a way that the student has an organized, successful

learning schema.

The SQ3R method was developed and researched at Ohio State University by Francis Robinson. Students have since found this technique so useful that it is now widely used in teaching reading at every level. In fact, an adapted summary on how to teach students to use this technique is now included in the S.R.A. kits.

The SQ3R method involves:

SURVEY 1. Glance over the headings in the chapter to see the few big points which will be developed. This survey should not take more than 10 or 15 seconds and will show the three to six core ideas around which the rest of the discussion will cluster. If the chapter has a final summary paragraph, this will also list the ideas developed in the chapter.

QUESTION 2. Now begin to work. Turn the first heading into a question. This will arouse your curiosity and so aid comprehension. It will bring to mind information already known, thus helping you to understand that section more quickly. And the question will make important points stand out while explanatory detail is recognized as such. This turning a heading into a question can be done on the instant of reading the heading, but it demands a query for which he must read to find the answer.

READ 3. Read to Answer that question, i.e., to the end of first headed section. This is not a passive plowing along each line, but an active search for the answer.

RECITE 4. Having read the first section, try briefly to recite the answer to your question without looking at the book. Use your own words and name an example. If you can do this, you know what is in the book; if you can't, glance over the question again. An excellent way to do this reciting from memory is to jot down cue phrases in outline form on a sheet of paper. Make these notes very brief!

NOW REPEAT STEPS 2, 3, and 4 ON EACH SUCCEEDING HEADED SECTION, THAT IS, TURN THE NEXT HEADING INTO A QUESTION, READ TO ANSWER THAT QUESTION AND RECITE THE ANSWER BY JOTTING DOWN CUE PHRASES IN YOUR OUTLINE. READ IN THIS WAY UNTIL THE ENTIRE LESSON IS COMPLETED.

REVIEW 5. When a lesson has thus been read through, look over your notes to get a bird's-eye view of the points and of their relationship. Check your memory on the content by reciting on the sub-points under each heading. This checking of your memory can be done by covering up the notes and trying to recall the main points; then expose each major point and try to recall the sub-points listed under it.

D-R-T-A (Directed-Reading-Thinking-Activity)

This approach to teaching reading contrasts strongly with traditional methodology, but offers a teaching method especially suitable to adults. The big difference lies in the method of establishing purposes for reading. The teacher is relieved of the responsibility of setting goals or purposes for the student. Instead, the teacher's role is to utilize the intellectual curiosity of a learner in such a way that the initiative and questioning attitude lie with the learner. This technique demands that the reader become involved in the dynamics of a purpose-setting session. Since adults know what they like or dislike, what they do or do not believe, and what they want or do not want to do, this teaching technique fits their needs for self-actualization like a tailor-made garment.

The reading-thinking process begins in the mind of each reader as he examines the title or subtitles and is asked to express a state of doubt or curiosity about what he knows or does not know, and what

he thinks will or will not happen. As he reads, he is continually asked to view his own opinion as a null hypothesis, and to become as interested in finding evidence that disproves his point of view as evidence that supports it. Obviously, this type of reading cannot be approached in a spirit of passivity. Every shift of emphasis the author makes gives the student the opportunity to add evidence to one side of the scale or the other. This is commonly known as the art of critical reading.

Critical reading has often been considered an unteachable skill or, if teachable at all--only at upper levels. Stauffer has developed in his D-R-T-A plan a system that is adaptable to every instructional level. Aside from the reading act, its doctrines are fundamental to problem solving and accelerate the educative process by teaching the learner how to structure his thinking rather than relying on the unsystematic, catch-as-catch-can sort of thinking that often becomes so ingrained that even advanced education does not overcome it.

Certain basic steps underlie D-R-T-A. These steps should be well developed and understood so the student can follow the procedures in a private or individualized learning situation. These steps as outlined by Stauffer are:[2]

I. Identifying Purposes for Reading

   A. Examining clues available in the
      1. Title and subtitles
      2. Pictures, maps, graphs, and charts
      3. Material: adjusting to information as it is read, and to readability

B. Declaring purposes in terms of the
   1. Reader's background of experience, intellect, language facility, interests, and needs
   2. Experience, abilities, interests, and needs of the group
   3. Content of the material: concepts of time, place, people, number, science, aesthetics, and humor

II. Guiding the Adjustment of Rate to Purposes and Material

A. Skimming: to read swiftly and lightly

B. Scanning: to read carefully from point to point

C. Studying: to read and reread so as to pass judgment

III. Observing the Reading

A. Noting abilities to adjust rate to purpose and material

B. Recognizing comprehension needs and providing help by clarifying
   1. Purposes
   2. Concepts
   3. Need for rereading (silent or oral)

C. Acknowledging requests for help with word-recognition needs by providing immediate help in the use of
   1. Context clues: meaning clues
   2. Phonetic clues: sound clues
   3. Structural clues: sight clues
   4. Glossary clues: meaning, sound, and sight clues

IV. Developing Comprehension

A. Checking on individual and group purposes

B. Staying with or redefining purposes

C. Recognizing the need for other source material

D. Developing concepts

V. Fundamental Skill-Training Activities: Discussion, Further Reading, Additional Study, Writing

A. Increasing powers of observation (directed attention)

B. Increasing powers of reflection by
   1. Abstraction: reorganizing old ideas, conceiving new ideas, distinguishing between ideas, generalizing about ideas, and making inductions and analyses
   2. Judgment: formulating propositions and asserting them
   3. Reasoning: inferring and demonstrating, and systematizing knowledge inductively

C. Mastering the skills of word recognition: picture and language context analysis, phonetic and structural analysis, and dictionary usage

D. Developing adeptness in the use of semantic analysis: levels of abstraction, shifts of meaning, referential and emotive language, definite and indefinite terms, and concept development.

A logical question at this point might be "Which of these methods--CLOZE, SQ_3R, or D-R-T-A--carry top priority in a teaching situation?" The order of presentation of these techniques in this syllabus also represents a logical teaching order. The CLOZE method sensitizes the student to the context and also develops a predictive or questioning attitude. Once the student has gained proficiency with the CLOZE technique, he is ready to organize these skills in such a way as to gain mastery in reading longer selections. The SQ_3R method does just this. Then, effective use of the D-R-T-A enables the reader to free himself from his own preconceived ideas as well as the biases he will inevitably meet on the printed page.

UNIT V

QUESTIONING TECHNIQUES

Taxonomy of Types of Questioning

In order to perfect or at least improve comprehension skills through questioning techniques, the teacher needs to:

1. Understand why the ABE students' language background is not a positive force in the development of comprehension skills.
2. Understand how the ability to do abstract thinking is developed.
3. Understand how comprehension can be improved by the proper questioning techniques.
4. Understand how to handle a one-to-one group, or classroom situation, so that the following behavioral changes result like a chain reaction:

Improved Patterns of Student Participation
↓
Student Discussion Becomes Representative of Different Levels and Kinds of Comprehension
↓
Student Integration of Different Levels of Thinking Into an Analysis of Life's Experiences
↓
Student Brings this Flexibility of Thought to the Printed Page

A great deal of research has proved the theory that a rich background of experience promotes the ability to read. In general, the home has been identified as the wellspring of this background. Many factors in the home background have been identified as crucial contributors to

the total reading picture, but the level and amount of verbal discourse that takes place in the home and the type of behavioral models concerning reading that the student has are probably the two most important factors. Where does this leave adults or those of us who attempt to teach them? It leaves the ABE student with a tremendous handicap, and it leaves the ABE teacher exactly where the typical elementary classroom teacher is left, without control over the mainstream of factors that are the major determiners in reading comprehension. Perhaps the zeal of most teachers to talk, talk, talk is thus inspired. In desperation to fill the gaps of ignorance, many teachers have droned their students into silence.

Amidon, Flanders, and others have helped us analyze this flow of language that takes place in the classroom. Even without the experts, experience tells one that (1) teachers do most of the talking; (2) students often are not listening; (3) students may be listening but not comprehending; (4) students may be comprehending at a literal level without any integration; and (5) the level of questioning does not alleviate any of these problems. The greatest tragedy that may be inherent in the educational situation occurs when the teacher does not become a relevant force in helping to balance the scales for those who begin with these disadvantages.

This entire unit is directed toward changing behavior, and teacher behavior is the target area. The teacher must try to change his behavior in ways that will help those who lack adequate language background

for the upper levels of comprehension. To begin, the teacher must understand patterns of questioning and what a "good three" on the Amidon scale represents. Simply stated, the teacher must hear the student and react favorably. To react favorably, the teacher must react in such a way as to reinforce the answering or responding behavior of the student so he will be willing to answer or attempt to answer a question. Even if the student is wrong, or particularly when the student is wrong, the teacher must handle the situation in such a way that the student will feel that at least his effort was appreciated.

Regardless of how secure the student feels when answering a question, not much will transpire if the student only has the opportunity to answer a question once or twice a day. If a student doesn't have a language background that words for him in reading comprehension, he will never acquire one by remaining a passive receptacle for the language of the teacher. He must be allowed to talk, encouraged to talk, and even made to talk. This means the typical teacher must make drastic behavioral changes in the amount of talking that he does. The ratio of teacher-talk to student-talk will almost reverse itself. The teacher's role will change from that of a lecturer to a responsive listener, encourager of student participation, and director of student participation. The teacher changes the structure of the classroom to that of a seminar where each person's research, opinions, and observations are reported, discussed, interchanged, and above all respected.

Once the above changes have been implemented, the major role of the teacher and the most difficult behavioral changes for the teacher both emerge. At this point most teachers will ask, "What are we discussing that has such tremendous weight?" This factor remains constant, the topic for discussion is still whatever segment of the curriculum that carries import for the learner. As a group, we know curriculum so thoroughly that our knowledge often obliterates the people we teach. The change is not in the basic subject matter, but in the way we approach it.

The crucial question is, "At what level are we discussing this material and can the level be improved?" Often we think of levels in terms of grade level of material. Perhaps, we think of levels in terms of the literal or interpretative comprehension levels. We know that certain students can comprehend material written at a certain grade level, and also within the level of a grade that some students are able to pick up more from the context than others. Unfortunately, most teachers let the matter rest at this juncture. If the teacher, however, can analyze why a student comprehends at this level, and knows what comes next in the sequence of comprehension skills, and can guide the student into that level, good teaching becomes a reality.

In order to do this, the teacher must be able to ask questions representative of different levels of comprehension. Once the student makes a response, the teacher must be able to analyze the response he receives and, in turn, ask another question. The second question

should be diagnostic in the sense that the question is directed toward developing whatever improvement in thought the student's response dictates as necessary. The teacher must be able to raise or lower the level of the discussion as student response indicates. What usually happens is: the teacher takes over the discussion in an effort to lift it to a higher level. This is the big pitfall to avoid.

A background of information concerning the levels of thought processes and the levels of comprehension is provided in the attached taxonomies. A word about these, please. Even the word comprehension is often the victim of semantic obscurity. A perusal of the literature related to comprehension reveals that the term "comprehension" is used in about as many ways as there are people writing about the subject. So for clarity, please refer to the Taxonomy of Reading Comprehension by Barrett. Using this taxonomy as a tool, the teacher can learn to both analyze and adjust the level of discussion in accordance to student need.

In order to understand how the ability to abstract or move from one category to the other is developed, please use the section from Sanders' Classroom Questions--What Kinds? This section does not use the same nomenclature as Barrett, but dovetails in other respects. Familiarity with Bloom's analysis of the thought process, on which Sanders' book is based, and subsequent questions related to these processes will give the ABE teacher insight as to how to move the student from comprehension of literal facts to critical evaluation.

CLASSROOM QUESTIONS WHAT KINDS? (Harper & Row, New York)

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Bloom's categories of thinking:*

1. Memory: The student recalls or recognizes information.
2. Translation: The student changes information into a different symbolic form or language.
3. Interpretation: The student discovers relationships among facts, generalizations, definitions, values, and skills.
4. Application: The student solves a lifelike problem that requires the identification of the issue and the selection and use of appropriate generalizations and skills.
5. Analysis: The student solves a problem in the light of conscious knowledge of the parts and forms of thinking.
6. Synthesis: The student solves a problem that requires original, creative thinking.
7. Evaluation: The student makes a judgment of good or bad, right or wrong, according to standards he designates.

An example of a memory question would be, "What is meant by "gerrymandering"? (The student is asked to recall the definition presented to him earlier.)

If teachers were to classify their questions according to the previous seven, many would find that memory questions play too big a part. The authors of the Taxonomy of Educational Objectives state that their categories are sequential and cumulative. In other words, each category of thinking has unique elements but also includes some form of all lower categories. The following chart illustrates this idea.

*Basic ideas underlying this study of questions come from the book Taxonomy of Educational Objectives. Edited by B.S. Bloom.

							[7]Evaluation
						[6]Synthesis	[6]synthesis
					[5]Analysis	[5]analysis	[5]analysis
				[4]Application	[4]application	[4]application	[4]application
			[3]Interpretation	[3]interpretation	[3]interpretation	[3]interpretation	[3]interpretation
		[2]Translation	[2]translation	[2]translation	[2]translation	[2]translation	[2]translation
	[1]Memory	[1]memory	[1]memory	[1]memory	[1]memory	[1]memory	[1]memory

A question should be classified at its highest level.

The chart also illustrates that attention to higher categories of thinking does not imply a neglect of memory, because memory is the only thought process that is a part of every kind of thinking.

There are both simple and complex questions within each category. A superficial appraisal of the levels of questions might lead to the conclusion that slow learners should restrict their efforts to the memory category, not all levels. This is an error, because there are simple questions in each category of thinking. The slow learners often find education frustrating and lacking in interest; these people, above all, need variety in their educational diet. Experimentation may show that students who have difficulty with memory questions will have greater success with those that provide all necessary facts and ask the students to use them.

The memory category requires the student to recognize or recall information. A question is framed in such a way that if the student remembers information presented to him, he will know it applies to the question. The student is not asked to compare, or relate, or make any inductive or deductive leap on his own. If a textbook contains a section comparing British, French, and Spanish Colonial policies, and a student is asked to make the same comparison, he has only to remember and the question falls in the memory category.

The greatest problem in this category is . . . how to determine the knowledge worth remembering. To determine this, one should look

at the ideas regarding facts, definitions, generalizations, values, and skills. A "fact" stresses knowledge that comes from direct observation, in a narrow sense. Also, something might be a fact that goes beyond direct observation if it is not subject to much disagreement. Facts have three roles in education.

1. Some facts are important in themselves. (Every citizen should know his legal rights when arrested.)
2. Some facts are worth remembering because a cultured person is expected to possess them.
3. The most important role of facts is the providing of building blocks for generalizations, laws, and principles.

For the most part, facts should serve as a means to an end rather than as ends in themselves.

Definitions are the designated meanings of words. A definition is not a fact because the relationship between the word and the entity to which it refers is arbitrarily assigned by man. As Shakespeare said, "That which we call a rose by any other name would smell as sweet." In any unit of study there are likely to be words that are new to the student. Some are more important than others.

The following vocabulary list from a unit on Greece will serve to illustrate this point. Underline the most important words in this list.

Acropolis, Agora, Allies, Athena, citizen, Colonies, Constitution, democracy, Golden Age, Parthenon, peninsula, and terraces. Certainly the meanings of words such as citizen, Constitution, and democracy deserve more attention than terrace, or even Agora and Athena. The latter have a significance in a unit on Greece but are not likely to

enter into study in subsequent history.

A generalization is a statement that declares the common characteristics of a group of ideas or things. A historian who specializes in the political history on Europe from 1500 to 1789 might generalize that the common pattern of government featured:

1. Absolute monarchy based on the divine right of Kings.
2. Restricted civil liberties
3. A privileged noble class
4. An established church

Students can learn the meaning of these generalizations and know much about the government of this period without duplicating the prolonged study of the historian. The superior teacher chooses generalizations on the basis of his study and knowledge of his subject. In some schools, the curriculum bulletins specify the main generalization to be taught. Teachers who follow the lead of a textbook have the generalization selected for them by the author.

A value differs from a generalization in that it expresses a judgment of quality. It states that something is good or bad, fair or unfair, beautiful or ugly, right or wrong, useful or useless, important or trivial, true or false. The Ten Commandments and the Beatitudes are examples of values against which behavior can be judged.

Attention to definitions, generalizations, and values is vitally important in framing good questions for four reasons:

1. This form of knowledge is generally the most important, the most worthy of learning.

2. Teachers will find it much easier to compare questions that require a variety of intellectual activities if they concentrate on generalizations and values.

3. Educational research indicates that widely applied generalizations and values are less likely to be forgotten than most other forms of knowledge.

4. Educational psychologists who have studied the transfer of training conclude that the best way to prepare students for an unknown future is to instruct them in the use of generalizations and values that are likely to have fruitful application.

Skills

One of the best ways to define skills is by testing their characteristics:

1. A skill is a physical, emotional, and/or intellectual process.

2. A skill requires knowledge, but knowledge alone does not insure proficiency.

3. A skill can be used in a variety of situations.

4. A skill can be improved through practice.

5. A skill is often made up of a number of sub-skills that can be identified and practiced separately.

We too often ask our students to use a skill without adequate information on its nature. The first instruction of a skill should be made on the memory level.

The memory category is indispensable on all levels of thinking. The more important and useful knowledge a student possesses, the better his chances for success in other categories of thought. However, the importance of the memory category should not be permitted to completely overshadow its three weaknesses.

1. The inevitably rapid scale of forgetting. Numerous studies show that arbitrary facts are forgotten more quickly than generalizations or principles, and even the latter have limited longevity.

2. Memorized knowledge does not necessarily represent a high level of understanding.

3. It neglects other intellectual processes learned only through practice.

Taxonomy of Reading Comprehension

by

Thomas C. Barrett

1.0 Literal Comprehension. Literal comprehension requires the recognition or recall of ideas, information, and happenings that are explicitly stated in the materials read. Recognition Tasks, which frequently take the form of purposes for reading, require the student to locate or identify explicit statements in the reading selection itself or in exercises that use the explicit content of the reading selection. Recall Tasks demand the student to produce from memory explicit statements from a selection; such tasks are often in the form of questions teachers pose to students after a reading is completed. Two additional comments seem warranted with regard to literal comprehension tasks. First, although literal comprehension tasks can be overused, their importance cannot be denied, since a student's ability to deal with such tasks is fundamental to his ability to deal with other types of comprehension tasks. Second, all literal comprehension tasks are not necessarily easy, since they, intuitively speaking, appear to range from easy to difficult. For example, the recognition or recall of a single fact or incident may be somewhat easier than

the recognition or recall of a number of facts or incidents, while a more difficult task than either of these two may be the recognition or recall of a number of events or incidents and the sequence of their occurrence. Also related to this concern is the hypothesis that a recall task is usually more difficult than a recognition task, when the two tasks deal with the same content and are of the same nature. Some examples* of literal comprehension tasks are:

1.1 Recognition or Recall of Details. The student is required to locate or identify or to call up from memory such facts as the names of characters, the time a story took place, the setting of a story, or an incident described in a story, when such facts are explicitly stated in the selection.

1.2 Recognition or Recall of Main Ideas. The student is asked to produce from memory an explicit statement in or from a selection which is the main idea of a paragraph or a larger portion from the selection.

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*Although the examples in this category and in those to follow are intuitively ordered from easy to difficult, it is apparent that such a finite hierarchy is not feasible. Therefore, the user of the Taxonomy should view the examples as some of the tasks that might be used to produce comprehension products, on the part of students, that relate to the type of comprehension described in each of the four major categories of the taxonomy.

1.3 Recognition or Recall of Sequence. The student is required to locate or identify or to call up from memory the order of incidents or actions explicitly stated in the selection.

1.4 Recognition or Recall of Comparisons. The student is requested to locate or identify or produce from memory likenesses and differences among characters, times in history, or places that are explicitly compared by an author.

1.5 Recognition or Recall of Cause and Effect Relationship. The student in this instance may be required to locate or identify or to produce from memory reasons for certain incidents, events, or characters' actions explicitly stated in the selections.

1.6 Recognition or Recall of Character Traits. The student is requested to identify or locate or to call up from memory statements about a character which help to point up the type of person he was, when such statements were made by the author of the selection.

2.0 Inferential Comprehension. Inferential comprehension is demonstrated by the student when he uses a synthesis of the literal content of a selection, his personal knowledge, his intuition and his imagination as a basis for conjectures or hypotheses. Conjecture or hypotheses derived in this manner may be along convergent or divergent lines depending on the nature of the task and

the reading materials involved. For example, inferential tasks related to narrative selection because of their content may call for convergent hypothesis more often than not. In either instance, students may or may not be called upon to indicate the rationale underlying their hypotheses or conjectures, although such a requirement would seem to be more appropriate for convergent rather than divergent hypotheses. Generally, then, inferential comprehension is elicited by purposes for reading and teachers' questions which demand thinking and imagination that are stimulated by but go beyond the printed page. Examples of inferential tasks related to reading are:

2.1 Inferring Supporting Details. In this instance, the student is asked to conjecture about additional facts the author might have included in the selection which would have made it more informative, interesting or appealing.

2.2 Inferring the Main Idea. The student is required to provide the main idea, general significance, theme, or moral which is not explicitly stated in the selections.

2.3 Inferring Sequence. The student, in this case, may be requested to conjecture as to what action or incident might have taken place between two explicitly stated actions or incidents; or he may be asked to hypothesize about what would happen next if the author had not stopped where he did.

2.4 Inferring Comparisons. The student is required to infer likenesses and differences in characters, times, or places. Such inferential comparisons revolve around ideas such as: "here and there," "then and now," "he and he," "he and she," and "she and she."

2.5 Inferring Cause and Effect Relationships. The student is required to hypothesize about the motives of characters and their inter-actions with others and with time and place. He may also be required to conjecture as to what caused the author to include certain ideas, words, characterizations and actions in this writing.

2.6 Inferring Character Traits. In this case, the student may be asked to hypothesize about the nature of characters on the basis of explicit clues presented in the selection.

2.7 Predicting Outcomes. The student is requested to read an initial portion of selection, and on the basis of this reading he conjectures about the outcome of the selection.

2.8 Inferring About Figurative Language. The student, in this instance, is asked to infer literal meanings from the author's figurative use of language.

3.0 Evaluation. Evaluation is demonstrated by a student when he makes judgments about the content of a reading selection by comparing it with external criteria, e.g., information provided by the teacher on the subject, authorities on the subject, or by accredited written sources on the subject; or with internal criteria, e.g., the readers experiences, knowledge, or values related to the subject under consideration. In essence, evaluation requires students to make judgments about the content of their reading, judgments that have to do with its accuracy, acceptability, worth, desirability, completeness, suitability, timeliness, quality, truthfulness, or probability of occurrence. Examples of evaluation tasks related to reading are:

3.1 Judgments of Reality or Fantasy. The student is requested to determine whether incidents, events, or characters in a selection could have existed or occurred in real life on the basis of his experience.

3.2 Judgments of Fact or Opinion. In this case the student is asked to decide whether the author is presenting information which can be supported with objective data or whether the author is attempting to sway the reader's thinking through the use of subjective content that has overtones of propaganda.

3.3 Judgments of Adequacy or Validity. Tasks of this type call for the reader to judge whether the author's treatment of a subject is accurate and complete when compared to other sources on the subject. In this instance, then, the reader is called upon to compare written sources of information with an eye toward their agreements or disagreements, their completeness or incompleteness, and their thoroughness or superficiality in dealing with a subject.

3.4 Judgments of Appropriateness. Evaluation tasks of this type require the student to determine whether certain selections or parts of selections are relevant and can make a contribution to resolving an issue or a problem. For example, a student may be requested to judge the part of a selection which most appropriately describes a character. Or he may be called upon to determine which references will make significant contributions to a report he is preparing.

3.5 Judgments of Worth, Desirability, or Acceptability. In this instance, the student may be requested to pass judgments on the suitability of a character's action in a particular incident or episode. Was the character right or wrong, good or bad, or somewhere in between? Tasks of this nature call for opinions based on the values the reader has acquired through his personal experiences.

4.0 Appreciation. Appreciation involves all the previously cited cognitive dimensions of reading, for it deals with the psychological and aesthetic impact of the selection on the reader. Appreciation calls for the student to be emotionally and aesthetically sensitive to the work and to have a reaction to the worth of its psychological and artistic elements. Appreciations include both knowledge of an emotional response to literary techniques, forms, styles, and structures. Examples of tasks that involve appreciation are:

4.1 Emotional Response to the Content The student is requested to demonstrate his reaction to a selection in terms of the visceral effect it had on him. The emotional impact of a work may have to do with such things as its ability to stimulate and sustain interest, excitement, boredom, fear, hate, or amusement on the part of the reader.

4.2 Identification with Characters and Incidents. Tasks of this nature will elicit responses from the reader that demonstrate his sensitivity to, sympathy for, or empathy with characters and events portrayed by the author.

4.3 Reactions to the Author's Use of Language. In this instance, the student is required to recognize and respond to the author's craftsmanship in his use of words. Such tasks deal with the semantic dimensions of a selection, e.g.,

the connotations and denotations of work.

4.4 Imagery. In this instance, the reader is called upon to recognize and respond to the author's artistic ability to "paint word pictures" that cause him to visualize, smell, taste, hear, or feel the things the author is describing.

FOOTNOTES

UNIT II

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UNIT III

[1] Edmund W. J. Faison, "Readability of Children's Textbooks," The Journal of Educational Psychology, XLII, (January, 1951), pp. 43-51.

[2] James W. Heddens and Kenneth J. Smith, "The Readability of Elementary Mathematic Books," The Arithmetic Teacher, XI, (November, 1964), pp. 466-468.

[3] Kenneth J. Smith and James W. Heddens, "The Readability of Experimental Mathematics Materials," The Arithmetic Teacher, XI, (October, 1964), pp. 391-393.

[4] Richard John Lee Covington, "An Analysis of Readability of Third and Fourth Grade Modern Mathematics Textbooks Using the CLOZE Procedure," Dissertation Abstracts, XXVII, (1967), 3219A.

UNIT IV

[1] Albert J. Harris, How to Increase Reading Ability. Fifth edition, (New York, David McKay, 1961), pp. 434-435.

[2] Russell G. Stauffer, Teaching Reading As A Thinking Process, (Harper & Row, Publishers: New York), pp. 20-21.